

What is claimed is:

1 1. A device that embeds an electronic watermark into an original
2 image, comprising:

3 a circuit that performs discrete cosine transform (DCT)
4 for the original image to output DCT coefficients;

5 a circuit that embeds the watermark into the DCT
6 coefficients, the watermark containing in a part thereof an
7 instruction to an electronic watermark detection device;

8 a circuit that quantizes the DCT coefficients into which
9 the watermark is embedded; and

10 a circuit that variable-length encodes the quantized DCT
11 coefficients.

1 2. The device according to claim 1 wherein the electronic
2 watermark is eight-bit data and the instruction is four-bit data.

1 3. The device according to claim 1 or 2 wherein the instruction
2 displays characters.

1 4. The device according to claim 1 or 2 wherein the instruction
2 accesses a web site on the Internet.

1 5. The device according to claim 1 or 2 wherein the instruction
2 starts an application program.

1 6. A device that detects an electronic watermark embedded in
2 an original image, comprising:

3 a circuit that decodes compressed image data in which the

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4 watermark is embedded;

5 a circuit that performs inverse discrete cosine transform
6 (IDCT) for the decoded data;

7 a circuit that detects electronic watermark data embedded
8 in the data for which IDCT has been performed; and

9 a circuit that performs a predetermined processing
10 according to an instruction included in a part of the electronic
11 watermark.

1 7. The device according to claim 6 wherein the electronic
2 watermark is eight-bit data and the instruction is four-bit data.

1 8. The device according to claim 6 or 7 wherein characters are
2 displayed according to the instruction.

1 9. The device according to claim 6 or 7 wherein a web site on
2 the Internet is accessed according to the instruction.

1 10. The device according to claim 6 or 7 wherein an application
2 program is started according to the instruction.

1 11. A method for embedding an electronic watermark into an
2 original image, comprising the steps of:

3 performing discrete cosine transform (DCT) for the
4 original image to output DCT coefficients;

5 embedding the watermark into the DCT coefficients, the
6 watermark containing in a part thereof an instruction to an
7 electronic watermark detection device;

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quantizing the DCT coefficients into which the watermark
is embedded; and
variable-length encoding the quantized DCT coefficients.

12. The method for inserting a watermark according to claim
11 wherein the electronic watermark is eight-bit data and the
instruction is four-bit data.

13. The method according to claim 11 or 12 wherein the
instruction displays characters.

14. The method according to claim 11 or 12 wherein the
instruction accesses a web site on the Internet.

15. The method according to claim 11 or 12 wherein the
instruction starts an application program.

16. A method for detecting an electronic watermark embedded
in an original image, comprising the steps of:

decoding compressed image data in which the watermark is
embedded;

performing inverse discrete cosine transform (IDCT) for
the decoded data;

detecting electronic watermark data embedded in the data
for which IDCT has been performed; and

performing a predetermined processing according to an
instruction included in a part of the electronic watermark.

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1 17. The method according to claim 16 wherein the electronic
2 watermark is eight-bit data and the instruction is four-bit data.

1 18. The method according to claim 16 or 17 wherein characters
2 are displayed according to the instruction.

1 19. The method according to claim 16 or 17 wherein a web site
2 on the Internet is accessed according to the instruction.

1 20. The method according to claim 16 or 17 wherein an application
2 program is started according to the instruction.

1 21. A computer readable recording medium storing therein a
2 program for embedding an electronic watermark into an original
3 image, said program causing a computer to:

4 perform discrete cosine transform (DCT) for the original
5 image to output DCT coefficients;

6 embed the watermark into the DCT coefficients, the
7 watermark containing in a part thereof an instruction to an
8 electronic watermark detection device;

9 quantize the DCT coefficients into which the watermark
10 is embedded; and

11 variable-length encode the quantized DCT coefficients.

1 22. A computer-readable recording medium storing therein a
2 program for detecting an electronic watermark embedded in an
3 original image, said program causing a computer to:

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4         decode compressed image data in which the watermark is
5         embedded;
6         perform inverse discrete cosine transform (IDCT) for the
7         decoded data;
8         detect electronic watermark data embedded in the data for
9         which IDCT has been performed; and
10        perform a predetermined processing according to an
11        instruction included in a part of the electronic watermark.

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